BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Foundation Diploma in Engineering Pearson BTEC International Level 3 Diploma in Engineering Pearson BTEC International Level 3 Diploma in Electrical/Electronic Engineering Pearson BTEC International Level 3 Diploma in Mechanical Engineering Pearson BTEC International Level 3 Diploma in Digital Engineering Pearson BTEC International Level 3 Extended Diploma in Engineering Pearson BTEC International Level 3 Extended Diploma in Electrical/Electronic Engineering Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering Pearson BTEC International Level 3 Extended Diploma in Digital Engineering
Unit number and title	**Unit 21: Electronic Measurement and Testing of Circuits**
Learning aim(s)	**A:** Explore the operational features of common electronic test devices used to measure and test signals in electronic circuits
Assignment title	Common electronic test devices used to measure and test signals in electronic circuits
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You have recently started an apprenticeship with a company that makes bespoke products for a wide range of industries. Many of the products contain electronic circuits, which are designed and made in-house. During your apprenticeship you will work in a number of different departments. Your first placement is with the Measurement and Testing Department. Your supervisor has instructed you to carry out a series of exercises to familiarise you with the test equipment commonly used in the workshop. Your supervisor would like demonstrate that you are able to select appropriate analogue and digital test and measurement instruments and use them accurately when you are testing customer products.

Task 1	You have been asked to research, carry out and evaluate practical investigations into the operational features of a range of measurement and testing devices. **To do this**: Your tutor will provide you with a range of measurement and testing devices that you need to investigate. You need to produce a report that includes information about the operation of: at least 3 analogue and 1 digital measurement device from: • multiple range meters (multimeters); • dual beam oscilloscope; • spectrum analyzer; • logic probe; • logic analyzer. and, at least 2 testing devices from: • stabilised direct current (DC) power supply; • signal/function generator; • digital pulse generator; • binary word generator. **You should then:** Produce a report using the results of your investigations to compare and contrast the operational features of each of the pieces of equipment that you have investigated. Your report should consider aspects such as accuracy, ease of use, scales and the relative merits of digital and moving coil meters.
Checklist of evidence required	Your written report exploring the operational features of typical measurement and testing devices. The report should include: • descriptions of the theoretical use of measurement and test equipment, including o diagrams, o explanations • evidence of the use of measurement and test equipment, including o circuit diagrams o tabulated results • comparisons between the theoretical and practical use of measurement and test equipment The evidence should be accompanied and supported by an Observation Record to confirm the authenticity of your work.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
21/A.D1	Evaluate, using language that is technically correct and of a high standard, the operational features of at least six different analogue and digital circuit measurement and test devices, identifying how to ensure accurate results.
21/A.M1	Compare the operational features of at least six different analogue and digital circuit measurement and test devices.
21/A.P1	Explain the operational features of at least six analogue and digital circuit measurement and test devices.
Sources of information to support you with this Assignment	Books Electronic Test Instruments: Analog and Digital Measurements; Witte R; Prentice Hall (2002); ISBN-13: 978-0130668301 Electronic Measurement and Testing: Tips and Techniques for Technicians and Engineers; Bartlett E R; ISBN-13: 978-0070039612 Electronic Testing and Fault Diagnosis; Loveday G; Longman 1995; ISBN-13: 978-0582252424 How to Diagnose and Fix Everything Electronic; Geier M J; McGraw-Hill Education TAB; ISBN-13: 978-0071848299 Websites electronics-tutorials.ws radio-electronics.com/info/t_and_m qualifications.pearson.com/en/support/published-resources.html#step1